

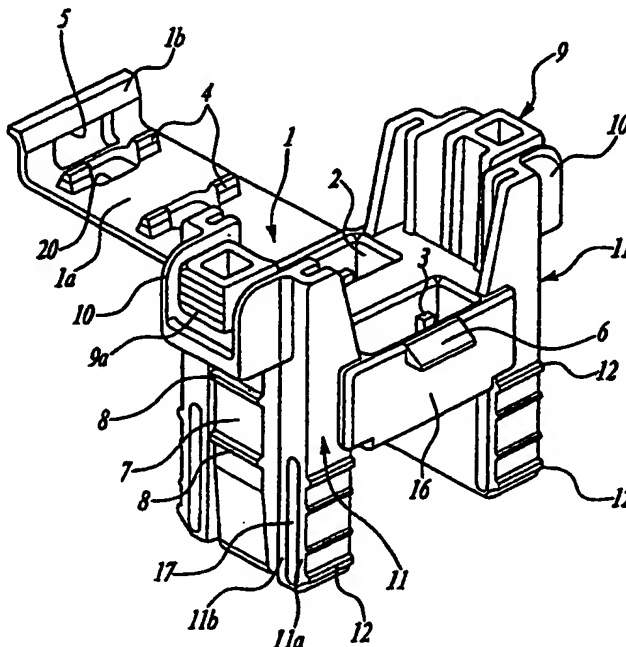


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(21) International Application Number: PCT/US98/01733 (22) International Filing Date: 29 January 1998 (29.01.98) (30) Priority Data: U 9700274 4 February 1997 (04.02.97) ES (71) Applicants (for all designated States except US): UT AUTOMOTIVE DEARBORN, INC. [US/US]; 5200 Auto Club Drive, Dearborn, MI 48126 (US). MECANISMOS AUXILIARES INDUSTRIALES, S.A. [ES/ES]; Passeig de l'Estacio, 16, P.O. Box 23, E-43800 Valls (ES). (72) Inventor; and (75) Inventor/Applicant (for US only): NIETO, Gonzalo Brotons [ES/ES]; Calle Pere Martell, 33 E, 2-2B, E-43005 Tarragona (ES). (74) Agent: GASKEY, David, J.; Howard & Howard Attorneys, P.C., Suite 101, 1400 North Woodward Avenue, Bloomfield Hills, MI 48304 (US).		(81) Designated States: BR, CA, MX, US. Published <i>With international search report.</i> <i>Before the expiration of the time limit for amending the claims and to be republished in the event of the receipt of amendments.</i>

(54) Title: MOVEABLE FUSE-HOLDER**(57) Abstract**

An electrical component holder facilitates maintaining one or more components in a selected position. The holder includes a pair of turrets (11) that facilitates inserting the holder into a first position where the component engages a corresponding circuit and a second position where the component is held close to but not in connection with the circuit. The holder includes a foldable cover (1) that includes stops (4) that maintain the component (such as fuses) in position within the holder when the cover is in a closed position. A pair of lever arm members (7) includes ridges (8) that maintain the holder in the selected positions by manually moving the lever arms and the holder relative to the circuit.



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MOVEABLE FUSE-HOLDER

BACKGROUND OF THE INVENTION

5 This invention generally relates to a moveable fuse holder having manufacturing, shaping and design characteristics that are specifically designed to maximize safety and efficiency.

 A variety of moveable fuse-holders specially designed for the automotive field exist in the market whose configuration and characteristics are
10 a function of the specific application to which they are intended. Therefore, most available fuse holders have a limited utility. Moreover, there is no fuse-holder adequate to be applied to an instantaneous inflating device such as an airbag.

 In an airbag or similar device it is of paramount importance that the
15 operative safety of all parts is equally reliable, since it functions in the cases of a front collision with an instantaneous inflation produced in milliseconds.

 The function of the fuse-holder of this invention is that of being integrated into the airbag or other device. This provides a significant advantage because it is mandatory that the assembly of the fuse-holder in the
20 pre-assembly operations of the superior assembly (*i.e.*, the airbag) does not set off or deploy the device. Further, the quality, measures, tolerances and other technical characteristics of the inventive fuse-holder, are of the higher quality and accuracy compared to prior designs, since the preferred destination is into a device of safety enhancement for the user in the event of a car crash.

25

SUMMARY OF THE INVENTION

 The moveable fuse-holder preferably has a prismatic body of a generally U-shaped configuration, which includes turrets joined or related by
30 a bridge part. The upper portion preferably has a cover that allows the entering of the corresponding fuses in the open position and when in the closed

position holds them firmly. The cover preferably allows the characteristics and situation of the fuses inside the fuse-holder to be visible when the cover is closed.

5 The fuse-holder turrets preferably are provided with a series of elements allowing the introduction of the fuse-holder down to the end of the housing, insuring a proper connection of the fuses when the elements are in a first position. In a second position, by pressing the suitable elements and releasing the appropriate catches, it is possible to extract the fuse holder up to the initial pre-assembly position, insuring the disconnection of the fuses
10 introduced in the fuse-holder.

Other details and characteristics of the present invention will become apparent through reading the description given below, in which reference is made to the figures attached to this description where the above details are depicted in a rather schematic way. These details are given as an example,
15 referring to a case of a possible practical embodiment, but the invention is not limited to those details. Therefore, the detailed description must be considered from an illustrative point of view, and with no limitations whatsoever.

BRIEF DESCRIPTION OF THE DRAWINGS

20

Figure 1 is a perspective view of the fuse holder with the moveable cover in an open position and before the fuses had been introduced.

Figure 2 is a perspective view similar to Figure 1, but after the fuses had been introduced into the housings and the cover has been closed over
25 them.

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENT

In the preferred embodiment and as can be seen in Figures 1 and 2, the
30 inventive fuse holder is formed with turrets 11 that are designed for

positioning tasks and are connected by a bridge 16. The upper part of the bridge includes the catch 6, whose function will be explained below.

5 A moveable cover 1 is supported on the rear side of the bridge 16 opposite from the catch 6. The moveable cover 1 is formed with a flat zone 1a out of the free edge of which, opposite to the hinge zone, has a lapel 1b including a notch 5 allowing the cover 1, when in the closed position (see Figure 2), to be held in the closed position by the catch 6. Out of the reverse of the flat zone 1a of the moveable cover 1 emerge stops 4 which function to immobilize the fuses when they are placed inside the housings 2.

10 The turrets 11 preferably are formed with two legs, each joined in its lower part with small walls 11a and 11b leaving between them a void area 17. An outer side of the small wall 11a includes ridges 12 and 13. The first ridges 12 prevent the fuse holder from being undesirably dismantled, while the second ridges 13 serve as stoppers of the guiding and positioning turrets.

15 Between every two legs of the turrets 11 there preferably is a stopper arm 7 that includes two ridges 8, which function as moveable stoppers.

20 Out of the upper part of the turrets 11 emerge balconies 10a, which cross section is U-shaped, that protect the actuator 9. The balconies 10a form part of the stopper arms 7 and have a generally prismatic configuration, with no upper base. One of the front faces of the actuator 9 has a series of ridges 9a that allow the user to manipulate the fuse holder into position without slipping from the fingers.

25 The operation procedure of assembly of the fuse holder consists, as can be seen in Figure 2, in placing fuses 14 into the cavities 2 in order to, and with the help of the lower stops 3 and upper stops 4, proceed to the immobilization and perfect positioning of the fuses 14 inside the cavities 2 and therefore be able to close the cover 1 and, with the help of the stops 4 positioned on the reverse or underside 1a of the cover 1, keeping them firmly immobilized inside 2.

30 The moveable cover 1 has two positions. The first one, seen in Figure 1, is considered open allowing the change of the fuses 14 placed into the

cavities 2. The second closed position of the cover (see Figure 2) insures the position of the fuses 14 inside the holder. When the cover 1 is closed, the fuses are visible through slots 20 in the cover.

5 The fuse housing cavities 2 has been designed in such a way that the stops 3 and 4 guide and protect the fuses once they are introduced inside the cavities 2. The lower stops 3 support the fuses avoiding any slipping downwards, while the stops 4 avoid any slipping towards the outside.

 The catch 6 snappingly receives the notch 5 to allow the fixation of the moveable-cover 1 in the closed position.

10 The stopper arm 7 facilitates maintaining the fuse holder assembly in two positions; pre-assembled and assembled. To move the assembly from the first position into the latter position, by pressing the actuator 9 the moveable stoppers 8 become free and allow the introduction of the part down to the end of its housing in the appropriate location within the device (*i.e.*, an airbag assembly), insuring proper fuse connection. Similarly, the assembly is
15 moveable into the second position, by pressing the actuator 9 such that the moveable stoppers 8 become free and can be pulled out or up to the initial position of the assembly, insuring the disconnection of the fuses.

 The moveable stoppers 8 produce the interference between the part and
20 its lodging in the device, marking the two positions of the part: pre-assembled and assembled.

 The actuator 9 has the object of letting the moveable-stoppers 8 free and allowing the fuse holder to be moved into the two available positions. The actuators 9 are protected by the balconies 10a to avoid accidental or
25 fortuitous blows to the actuators 9.

 The positioning guide turrets 11 have generally the function of guiding the full part inside its housing in the fuse holder box. Meanwhile the stoppers 12 function to prevent the dismantling or complete remove of the assembly since, once the part is partly entered in its housing in the box, the stoppers
30 flex allowing then the introduction of the part in the guide and, once free when

it arrives to the end of the hole, they recover their natural state and impede the extraction of the part outside the fuse holder box.

5 The stoppers 8 guide and position the turrets 11. The stoppers 8 also are for adjustment between the part and its housing in the fuse holder box. Its object is that of flexing and marking the two positions of the part from assembled to pre-assembled and vice versa.

10 The sight of the fuses 14 allows seeing the amperage of the fuses, while the hinge 13 allows the movement of the moveable cover 1 as described above. The general object of the fuse holder is that of designing a part where the two fuses are housed in such a way that the electrical connection is established through a manual action, as well as its disconnection also by manual action. This part is specially indicated for the safety functions such as those of the airbag, ABS devices and the like.

15 The part in itself is designed with the object of insuring the contact of the fuses lodged inside the box, being necessary the part manipulation in its different positions: pre-assembly, assembly and extraction. It is necessary to handle the stopper arm 7 for being able to free the moveable stoppers 8, as well for insuring the box connection as well as its disconnection.

20 The rugged and strong design is thought for avoiding undesired fortuitous blows, insuring always the correct position of the part, given the restrictive safety conditions demanded for becoming part of the above named devices such as airbag, ABS and the like.

25 The preceding description is exemplary rather than limiting in nature. Variations and modifications are possible that do not depart from the spirit and purview of this invention. The scope of legal protection is limited only by the following claims.

Claims

What is claimed is:

1. A device for maintaining an electrical component in a desired position relative to a corresponding circuit, comprising:

5 a component receiving portion having at least one component housing for receiving and housing the component;

a stop member supported within said component housing;

10 two turrets, one of said turrets on each side of said component receiving portion, said turrets extending longitudinally in two opposite directions from said receiving portion to provide support for mounting said component receiving portion within a circuit housing; and

15 a cover hingedly supported on one end of said component receiving portion such that said cover is moveable between a first position where said cover covers over said component receiving portion and a second position, said cover including a stop on an inside surface that cooperates with said stop member within said component housing to maintain the component in a desired position within said component housing when said cover is in said first position.

20 2. The device of claim 1, wherein said stop member within said component housing comprises a tab extending from an interior wall of said housing.

25 3. The device of claim 2, further comprising a second component housing having a second stop member.

30 4. The device of claim 3, wherein said cover includes two slots positioned on said cover such that when said cover is in said first position said slots are aligned with said component receiving housings, respectively.

5. The device of claim 1, further comprising a bridge portion extending between said turrets and having a tab extending from said bridge portion and wherein said cover includes a notch that snappingly engages said tab when said cover is placed into said first position.

5

6. The device of claim 1, wherein said turrets each include a ridge near one end of said turrets that is adapted to engage a surface on a circuit housing such that said device is not inadvertently completely removed from said circuit housing.

10

7. The device of claim 6, wherein said one end of said turrets includes a pair of walls with a void between said walls.

8. The device of claim 1, further comprising a lever arm movably supported on each said turret, each said lever arm including a first and second end and a pair of stop edges between said ends, said first end of said lever arm including an actuator that is moveable to cause said lever arms to flex relative to said turrets to facilitate movement of said device relative to a circuit housing that receives said device.

20

9. The device of claim 8, wherein said stop edges are positioned on said lever arm such that a first one of said stop edges facilitates maintaining said device in a first position where the electrical component is connected with the corresponding circuit and a second one of said stop edges facilitates maintaining said device in a second position where the electrical component is disconnected from the corresponding circuit.

25

10. The device of claim 8, further comprising a balcony supported on each turret and wherein each said balcony surrounds at least two sides of a respective one of said actuators.

30

11. The device of claim 10, further comprising ridges on said actuators, said ridges being supported on a face of each said actuator that is not surrounded by a respective balcony.

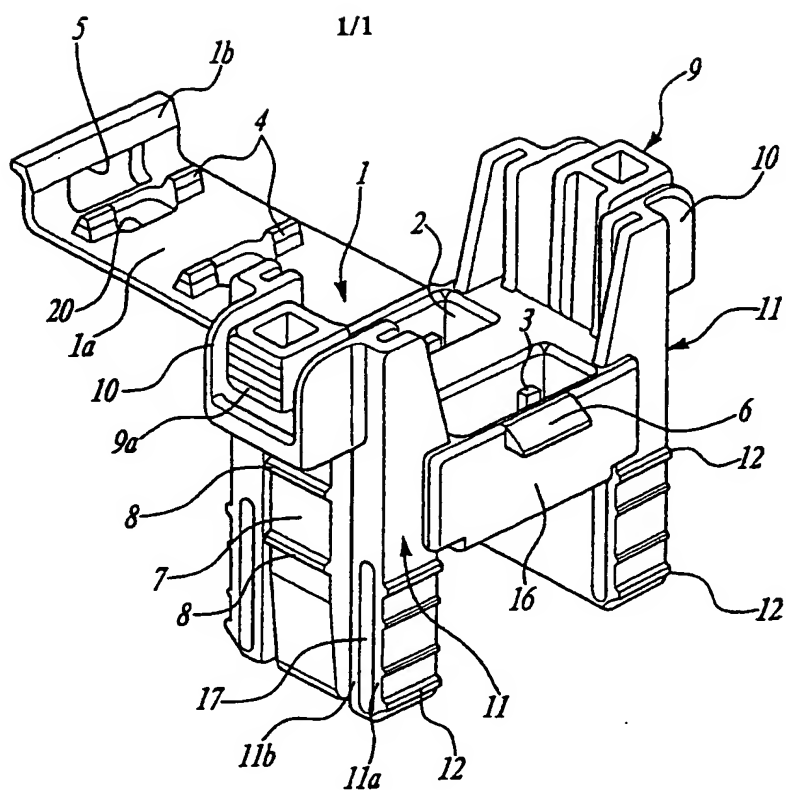


Fig-1

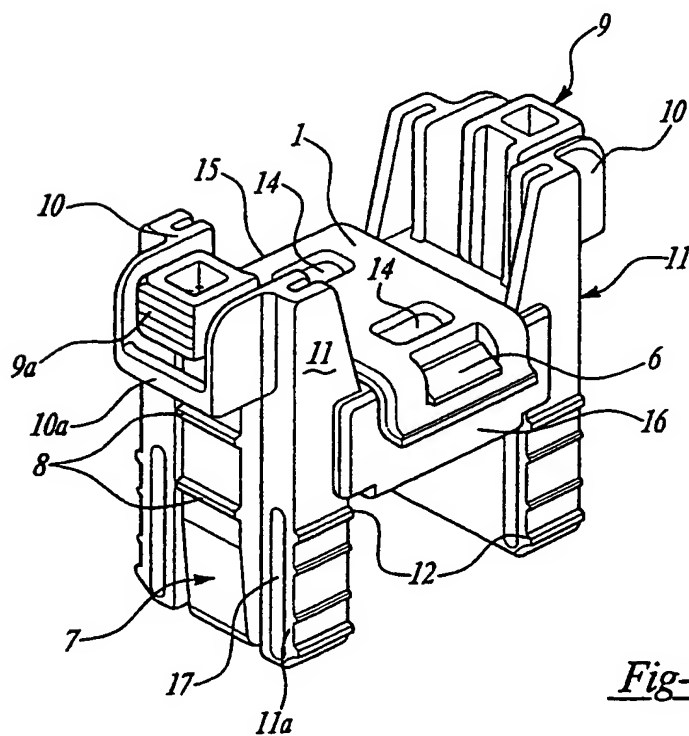


Fig-2

INTERNATIONAL SEARCH REPORT

International Application No
PCT/US 98/01733

A. CLASSIFICATION OF SUBJECT MATTER

IPC 6 H01H85/20

According to International Patent Classification(IPC) or to both national classification and IPC

B. FIELDS SEARCHED

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IPC 6 H01H

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

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C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	US 5 247 250 A (RIOS JUAN P) 21 September 1993 see the whole document ---	1,2,6,8, 9
Y	FR 2 735 280 A (PEUGEOT) 13 December 1996 see the whole document ---	1,2,6,8, 9
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Date of the actual completion of the international search

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Name and mailing address of the ISA

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NL - 2280 HV Rijswijk
Tel. (+31-70) 340-2040, Tx. 31 651 epo nl,
Fax: (+31-70) 340-3016

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Desmet, W

INTERNATIONAL SEARCH REPORT

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C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT		
Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	US 5 171 293 A (UMEMOTO HIROSHI ET AL) 15 December 1992 -----	

INTERNATIONAL SEARCH REPORT

Information on patent family members

International Application No

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